

Australian Southern Bluefin Tuna Industry Association

Inquiry by The House Standing Committee on Agriculture and Water Resources

Submission by the Australian Southern Bluefin Tuna Industry Association (ASBTIA)

Terms of Reference

Inquiry into the Australian aquaculture sector terms of reference:
to inquire and report on:

- a) the nature and current status of Australia's aquaculture sector;
- b) opportunities and barriers to the expansion of the aquaculture sector:
 - i) including ability to access capital and investment;
- c) opportunities to streamline and increase the effectiveness of the current regulatory frameworks that govern aquaculture activities in Australia; and
- d) the ability for businesses to access and commercialise new innovations to expand aquaculture.

Structure of submission

- (1) The background general reasons why aquaculture provides a great opportunity for regional Australia.
- (2) Responses to the specific TOR points.
- (3) The tuna aquaculture experience.

Background

Our view is that aquaculture provides very large opportunities for regional Australia because:

- (1) The geographical position of Australia – a large country with a wide range of latitudes and longitudes – gives the opportunity for a wide range of aquaculture species.
- (2) Australia is in close proximity to the fastest growing markets in the world, where seafood is very often the preferred food.
- (3) That proximity also gives Australia a competitive freight advantage over many other exporting countries.
- (4) Australia has a strong research base, providing a competitive advantage.
- (5) Aquaculture is essentially marine husbandry – and Australia has a large base of animal husbandry skills.
- (6) Aquaculture will increasingly include a wider range of marine by-products, and Australia's large Zone provides the opportunities for these.
- (7) Aquaculture will be increasingly mechanized and high tech – so reducing Australia's current competitive disadvantage on labour and some other costs.

- (8) Land-based farming of some key seafood species will become more important – and it can be energy-intensive. Australia should have a competitive advantage in energy-intensive industries.

However, that potential for regional Australia will not be realized if Australia does not recognize that:

- (1) Aquaculture is a global industry – with the need to continually implement new technologies and production methods developed in Australia or overseas.
- (2) Tuna aquaculture does not have any overseas equity, but overseas shareholdings in many sectors will be essential to best utilise global technology and market channels.
- (3) Regulation is necessary – but so is trialing changes in the current production methods. Some mistakes will be made – as they are in any industry progress.
- (4) Aquaculture industries such as salmon, kingfish, prawns, oysters, mussels and barramundi have grown from a very low base. Especially salmon has been a great success story. The criticisms are well-known – but what is not recognized are the achievements in areas such as salmon export (see below). Australian farmed salmon is very competitive in China and Japan, and markets such as Indonesia – against the very large overseas producers such as Norway and Canada.
- (5) Recruiting workers to regional areas is increasingly difficult, and a combination of training programs

The Terms of Reference

Our comments on the questions raised in the Terms of Reference are:

- (1) SA has its own Aquaculture Act which facilitates balanced aquaculture industry development with protection of the environment. The Act and supporting legislation give aquaculture the flexibility to trial different options, as long as it is accompanied by monitoring programs.
- (2) In general, we have no problems with the current regulatory framework in SA. The Aquaculture Act is accompanied by a detailed Management Plan for each Aquaculture Zone, which is decided after long consultation.
- (3) In SA, long-term leases (now up to 30 years) improve access to capital. Note: Tuna does not utilize the multi-year leases (now 30 years in SA). This is to avoid speculation in sites. Our access to capital is through the collateral provided by the Individual Transferable Quota (ITQ) rather than the farm site and equipment.
- (4) The industry's access to future innovations is generally good in our experience. In the tuna case, copying production method changes is not difficult – partly because most of the global technology in tuna farming is still being developed in Australia.

The tuna aquaculture experience

In summary:

- (1) The global tuna farming technology was invented in Port Lincoln in 1991 – in response to the majority of the traditional wild SBT industry going into receivership or Bank control. The only way out was to re-invent the industry to a high value-added production system.
- (2) The Australian industry was a group of first generation immigrants from Croatia, Italy and Germany. These individuals were entrepreneurial and innovators – with the “bush engineering” skills to pioneer and expand new technologies.
- (3) Tuna farming is different from normal aquaculture in that it is capture of wild SBT and grow out of that wild stock. Globally, only a small part of the tuna farm production is from a hatchery in Japan. The reason for that is that hatchery produced farmed tuna can’t be cost competitive with wild grow out of wild-caught tuna (see below).
- (4) The grow out model is used only for the three premium tunas in the wild – SBT, Pacific Bluefin Tuna (PBT) and Atlantic Bluefin Tuna (ABT). The reason is that only the Bluefins command the higher prices required to justify the cost of grow out.
- (5) The production system varies only slightly between the different tuna farming regions which harvest farmed Bluefins – Mediterranean (50,000t pa); Japan (18,000t); Australia (8,500t) and Mexico (5,000t).

The tuna data

There seems to be an impression that aquaculture growth has stalled in Australia. However, this is largely because of a decline in tuna aquaculture production because of export price falls and a weaker yen. Note that this is export data because all of Australian farmed tuna is exported.

	Tuna farm exports (\$m fob)	All Aust aquaculture production (\$m)
2002	291 (peak)	708
2003	229	731
2004	152	709
2006	154	742
2007	181	806
2008	139	869
2010	118	871
2011-2012 av	150	1,048
2015	112	1,187
2016-2018 av	120	1,356
2019	141	1,533
2020	95	1,646

Source: Tuna ABS (from www.frdc.com.au)
All aqua – ABARES (from www.frdc.com.au)

The wild SBT growout business model

Tuna farming (ranching) is often wrongly criticized for:

- (1) Using wild stock rather than hatchery stock.
- (2) It is using wet feed (eg sardines rather than pellets)

In fact, ranching is high value added and good natural resource management – because:

“We are re-locating 300,000 SBT (av 15 kg) from a very low productivity environment in the wild to a high productivity environment in farms. For example:

- a. Non-fishing mortality in the Australian region is 25% in the wild (www.ccsbt.org) but are only 0.6% in the farms (www.afma.gov.au).
- b. Fish growth in the wild is about 30%pa (www.ccsbt.org) and 95% in farms (www.afma.gov.au)
- c. We are feeding the SBT in farms largely the same sardines as they are eating in the wild but with a farm Feed Conversion Ratio (FCR) of 2.1:1 dry weight compared with an estimated 6:1 in the wild. Note: A sardine is 73% moisture.

One of the reasons farming is better resource management is that wild SBT are severely compromised by high mortality and low growth because of:

- a. Its highly mobile annual migration pattern from South Africa to NZ.
- b. The large loss of younger tunas from sharks and other predators.
- c. Long periods of starvation – up to 28 days shown by archival tags.

The catch of sardines in SA for tuna farming is managed in a highly precautionary way (www.pir.sa.gov.au) It is a highly efficient fishery, with a seamless operation from night catching of sardines to feeding direct into the tuna pontoons.

Issue of Bluefin hatcheries

It is very doubtful whether hatcheries can be an economically or ecologically viable way of producing Bluefin tuna for the foreseeable future. The reasons are:

- (1) In the case of Australia, the growout process catches a 15kg (average) 3 year old SBT in the wild for around \$2/kg into farm. Even allowing for substantial improvements in hatchery technology, including growout time to 15kg and in hatchery stock mortality, it is not conceivable that it can lower the cost to \$2/kg. Even the \$2/kg wild catching cost will reduce over time as the 3 Bluefin stocks around the world continue to recover.

- (2) In the case of farming of Pacific and Atlantic Bluefins, the growout cost can be even lower than SBT. The reason is that the Bluefins they catch are being conditioned for just lower cost **fat** gain rather than **total** weight gain. This is a challenge for SBT farming, rather than an advantage for hatcheries.
- (3) The only rationale for hatcheries was that the three Bluefin wild stocks were not sustainable. In the SBT case, the stock and catch quotas continue to increase – see below.
- (4) What is often not recognized is that tuna farming only started in 1991 in the world. Compared with terrestrial farming (thousands of years old) and even other aquaculture (eg oysters), tuna farming is very young. There are major improvements yet to come – and we now see them every year in Port Lincoln. Sometimes they result from scale economies – but more often from supply chain efficiency gains, for example from new feeding and harvesting technologies.

The SBT wild stock

Since the SBT catch quotas started in 2012 to be set by a scientific formula – the Australian SBT catch quota has increased by 55% from 4,015 tonnes to 6,238 tonnes in 2021 (www.ccsbt.org; www.afma.gov.au) In addition:

- (1) There is no overfishing.
- (2) The stock is at the important Reference Point of 20% of the spawning stock biomass (SSB) before global fishing started (year 1932).

The background to this is:

- (1) Australia and Japan each have 34% of the global SBT quota. The other SBT fishing countries hold the balance (Korea, Taiwan, NZ, Indonesia, South Africa and the EU). China previously had some catch but legislated in 2019 to release any incidental catch of SBT (www.ccsbt.org)
- (2) Up until 2012, the global quota was set by CCSBT Commission, based on advice from the CCSBT Scientific Committee and a range of other non-scientific indicators. This approach led to a stock decline, including the impact of Japan's long-term overcatch (see Polacheck, T, 2012. Assessment of IUU Fishing for Southern Bluefin Tuna. Marine Policy September 2012).
- (3) In 2011, the CCSBT decided to replace the old way of setting the quota by a new scientific model-based approach – called a Management Procedure (MP). This is a Harvest Strategy which sets rules to determine the global quota. The MP sets a target level of stock recovery – for example, the first target in 2012 was for the stock to recover to the 20% Reference Point by year 2035. If the data show the stock trajectory to be meeting that trajectory, then the quota can be increased – if not, the quota is reduced. For a fuller explanation of this – see www.ccsbt.org

- (4) This setting a quota by a scientific formula is called a Decision Rule – and was the first time globally this had happened in any tuna fishery, and possibly in any fishery. The result of setting the quota totally by science has been:

	CCSBT quota (tonnes)
2011	9,449
2014	12,449
2017	14,647
2020	17,336
2021	17,647
Source: www.ccsbt.org	

The quota increases reflect the rapid stock recovery shown in para (3) above:

	% of pre-fishing (1932) biomass
2011	5.5
2014	9.0
2017	13.0
2020	20.0
Source: www.ccsbt.org	

The SBT farming supply and decision-making chain

Relevant to the TOR for this Inquiry – aquaculture has a much longer supply chain and cash flow challenges than wild fishing. For example:

- (1) In the salmon case, the grow out on land and at-sea can be 2.5-3 years, with all the risks and dollar holding costs. In wild fishing, the catch goes direct to market.
- (2) In the tuna farming case – the catch/grow out is 5-7 months, with large outlays for feed, staff and regulatory costs.
- (3) Tuna is 99% exported – with no guarantee that the fish in the farm can be sold. Every extra day they are held in pontoons beyond the optimum growout period is a significant added cost.

In the tuna case, the supply chain is a mix of international, Commonwealth and State issues – policy and operational. Just some of these are:

- (1) Quotas: All quotas are set by DAWE (via AFMA), based on the recommendation of a CCSBT scientific formula (Harvest Strategy) – see www.ccsbt.org
The quotas are set by CCSBT after 3-4 international meetings pa. AFMA still has to agree with them and issue them to quota owners.
- (2) Charter/recreational SBT catch in Australia: After 16 years of continuous debate over how to fit Australia’s charter/recreational catch into Australia’s CCSBT quota, in

- 2020 the SBT Management Plan was finally amended to permanently allocate 5% of the Australian quota for charter/recreational catch. It is unclear how the States will manage this. From 2018-2020, the imputed charter/recreational catch was covered by a voluntary AFMA/ASBTIA arrangement where ASBTIA set-aside 250t pa to not be caught by the quota owners.
- (3) Allocation of farm sites in SA: The allocation of sites is done annually to reflect the quota available to each farmer. This avoids speculation in farm sites. However, it means tuna farmers can't take advantage of the 30 year site leases available in SA for aquaculture sites.
 - (4) The Tuna Farming Zone (TFZ): This is the Zone off Port Lincoln where tuna farming is allowed to take place. This has strict regulations governing maximum stocking rates, maximum tonnage in the TFZ and the maximum on a site. The TFZ and the regulations are under consistent review, partly because of developments in the science, and because of the outcomes of environmental monitoring programs.
 - (5) Catching the tuna: Some of the process in January/March each year is:
 - a. Aerial spotting planes search for the SBT on their migration through the Great Australian Bight (GAB). Every year is different because of changes in oceanography and other activity in the GAB (eg seismic surveys).
 - b. Fishing is only possible one in every four days because of weather.
 - c. Purse seine catching and support boats catch the 5,000t of SBT over the January/March period. After circling the SBT, the fish are transferred live through underwater panels to towing pontoons. There requires about 3-4 fishing events to fill each tow.
 - d. The SBT are towed to Port Lincoln at one knot – with about 30 tows pa, with normally 10,000 fish/tow
 - e. A 3,000 fish weight sample of SBT of 10kg and over is taken from the 30 tows by the Government. The Government then counts each fish individually into the farming pontoons.
 - f. The catch for that tow, including any catch/tow/transfer mortalities, is debited against the quota owned or leased in by the farmer.
 - (6) Feeding the tuna. The main supply chain issues are:
 - a. The farmers use largely local sardines under strict quota management.
 - b. As noted earlier, the sardine quota needs to be supplemented by imported high quality feed. This is imported under strict quarantine conditions.
 - c. The feeding process is now largely mechanized.
 - d. The number of divers required and the diving training.
 - e. Post-harvest assessment of the benthic and water quality impact of tuna farming.
 - (7) During and at the end of the farming period, the operations are closely monitored by the SA Government compliance officers, and the final fish in/out audited by AFMA. The total results are then submitted to CCSBT for scrutiny by all Members.
 - (8) Mortalities: Over the last 10 years the fish husbandry systems have reduced mortalities over the growout period from 14% to 0.3% (over 4-7 months), well ahead

of the world. This low mortality means that the health of the tuna in the pontoon has improved significantly.

(9) Harvest: The tuna are generally harvested after 4-7 months feeding, during which the weight is almost doubled. Other issues;

- a. Each individual harvested SBT must have its weight and length individually recorded and the record available digitally to governments in export markets.
- b. Each harvested fish must have its own number tag.

(10) After harvesting, the SBT are frozen to around 55d C in containers or on large freezer boats. Entry of such vessels and buyers has been made difficult by the Pandemic.

(11) Certification: It is highly desirable for SBT to be certified by MSC, delisted from EPBC, and removed from IUCN listing. Given the recovery of the SBT stock, these are expected in 2021.

(12) Marine Park: With the change in the migratory path of SBT in the Great Australian Bight (GAB) the SBT now often aggregate in the Murray Mouth Marine Park. Even though the catching of SBT in the area would be purely shallow depth fishing, no bycatch, be for only two months pa and use only a small area of the Park – this is not permitted at this stage.

(13) Conflict with Charter/Recreational fishing of SBT: This is DAWE's responsibility and real progress is being made.

(14) Seismic surveys: DAWE and DISER are trying to get the fishing and seismic industries together to pre-agree on seismic applications to NOPSEMA.

ASBTIA

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